

Baylor University
School of Engineering and Computer Science
Board of Advocates
Fall Meeting – October 5, 2012
Baylor University

Board members attending: Jay Battershell, Joe Cestari, Brad Crawford, Fred Logan, Hector Martinez, Don McErlean, Bill Mearse, Craig Nickell, Harold Rafuse, Steve Smith, Harold Spangler, Shawn Sedate, Dean Swisher, Rick Tullis Trent Voigt, and Jim Wiethorn

Board members absent: Mark Cannata, Ken Carlile, Beth Casteel, Romelia Flores, Mark McCollum, Andy Spencer, Greg St. Denis

Welcome

Following a continental breakfast, Bill Mearse convened the meeting. He introduced [Baylor Executive Vice President and Provost](#), Dr. Elizabeth Davis. Dr. Davis welcomed the Board and talked about the University's strategic vision, [Pro Futuris](#). She gave a brief history of the origin of *Pro Futuris*, including feedback from various groups and understanding the University's financial position. With bond capacity at a maximum and not wanting to raise tuition, a plan was necessary to deal with financing the University's initiatives. The decision to depart from the format of Vision 2012 was made, and *Pro Futuris* was written "with the end in mind." Dr. Davis outlined the five aspirational statements.

1. Transformational Education. The University's goal is to combine student life and academic life together matters and is important.
2. Compelling Scholarship. Baylor needs to be involved in generating new knowledge and bringing solutions to the world's problems.
3. Informed engagement. The University will help students understand their calling and vocation through learning about culture and providing service. As an example, Dr. Davis referred to [Engineers with a Mission](#).
4. Committed Constituents. Baylor needs to more deeply engage alumni, both philanthropically and with current students.
5. Judicious stewardship. Baylor brings value to the cost of higher education, and the university will look for ways to help students afford Baylor. The Scholarship initiative will never go away, and the University will continually look for ways to generate additional funds. There will also be a greater level of accountability to help students afford higher education.

Dr. Davis went on to say that Baylor has a distinctive role in higher education. Baylor is the only research-level institution of higher education with a focus on the Christian world view. As for next steps, the Board should note several references to engineering in *Pro Futuris*. Considering the operating budget, progress will be slow, but with philanthropy, it can move faster.

Trent Voigt asked how the stadium construction is shifting the University's financial priorities. Dr. Davis answered that it is not shifting the operating budget. With renegotiated TV rights, an addition-

al \$100M will fund the stadium. No tuition dollars are being used in the stadium construction. Also, she said, a byproduct of the stadium construction has been an increase in academic philanthropy. There is a higher willingness of people to give large sums to Baylor.

Craig Nickell asked about the University's bonded number. Dr. Davis was not sure, but estimated the bond amount around \$600M. She said that the University's bond rating will go down one notch, which was an expected outcome.

Rick Tullis asked Dr. Davis where ECS fits into the overall University picture. Dr. Davis reminded the Board that very few academic units are mentioned in *Pro Futuris*. While the last ten years have seen expansion of the humanities areas that will not decrease, Baylor is a "comprehensive university, not a liberal arts college."

Rick Tullis asked about Baylor's overall student population growth. Dr. Davis responded that, while the undergraduate population will not grow, a focus will continue on increasing the graduate student population. She said large research universities have more graduate population than undergraduate, although Baylor will continue to keep the focus on undergraduate education.

Trent Voigt asked about Baylor's competition for students. Dr. Davis said that the university competing for the largest number of students is Texas A&M, and not as much from SMU or TCU. Baylor's student population has many out-of-state students who considered other private universities.

In conclusion, Dr. Davis said that ECS is very important to Baylor because it helps with the male population. Many additional benefits will continue to accrue.

Fred Logan congratulated Dr. Davis on the outstanding job with *Pro Futuris*. Dr. Davis summarized by saying that *Pro Futuris* enables Baylor's message to be clearer by explaining "the why of 2012." This will help people understand Baylor better.

Dean's Report

Dr. O'Neal gave his first Dean's Report to the Board of Advocates. He introduced himself and gave some personal background, including his family and hobbies and his most recent positions before arriving at Baylor. He introduced the two new ECS faculty, Dr. Mack Grady (ECE) and Dr. Michael Poor (CS).

Dr. O'Neal spent some time discussing the recent visit from representatives of the Accreditation Board for Engineering and Technology (ABET). He explained that all three of Baylor's engineering programs were evaluated and explained the initial feedback, including strengths and weaknesses. The program with the most worrisome issues is the general engineering (BSE) program, although all programs had weaknesses related to their program educational objectives (PEO). Additionally, lack of space in all programs was noted as a concern by the ABET team. Dr. O'Neal said that ECS is "optimistic that the deficiency and weaknesses can be addressed and most cleared up before the ABET final report is voted in July 2013."

Rick Tullis asked for a definition of a PEO. Dr. O'Neal defined a PEO as "what students should have when they walk across the graduation stage."

Dr. O'Neal continued that the ABET concerns are fairly easy to fix. If something is not corrected by 2013, a report will be due two years beyond that (2015).

Next, Dr. O'Neal shared some observations from his first two months at Baylor.

- Baylor has quality leadership at the top
- Faculty are behind *Pro Futuris*
- ECS has a great group of faculty and staff dedicated to providing a quality education for our students
- ECS provides a unique experience for students who live in the North Village LLC
- ECS provides excellent experiential learning experiences for the students
- Size of ECS has reached “critical mass” to attract attention of large corporate recruiters
- ECS is producing excellent graduates
- Computer Science has more visibility than the engineering programs because of the International Collegiate Programming Contest (ICPC)
- The rapid growth in ECS has jeopardized the quality of our programs
- Research expenditures in all programs are modest
- Lack of Ph.D. programs in CS and ME will affect the growth of our graduate and research programs
- Research infrastructure at Baylor is still in its infancy, is improving, but needs to continue to grow
- ECS is space constrained
- Completion of the BRIC is vital for the growth of ECS research
- ECS is short of support staff
- ECS endowments are insufficient for a program our size
- *Pro Futuris* will help set the agenda for ECS during the next 10 years. Dr. O'Neal continued by saying that ECS will develop a strategic plan that aligns with the aspirations in *Pro Futuris*.

Finally, Dr. O'Neal listed some “tactical actions” to be taken this year:

- Address issues raised by the ABET visit
- Complete proposal for design center to temporary relieve space in Rogers Building
- Complete enrollment management plan proposal
- Hire six faculty committed to quality teaching and building a research program at Baylor
- Get Ph.D. programs in both Computer Science and Mechanical Engineering approved
- Work with development to increase endowments
- Work to increase visibility of engineering programs in major industries in the state
- Develop articulation agreements with other faith based schools in state that don't have engineering programs

Bill Mearse asked about the “disconnect” with the University's central Career Services. Leigh Ann Marshall interjected with experience that the partnership between Career Services and ECS is continually improving. Soon, there will be a new Executive Director of Career and Professional Development, and that should further strengthen career and professional development opportunities for ECS students. Dr. O'Neal added that ECS is making progress “one company at a time.”

Trent Voigt asked about why mechanical engineering enrollments are high across the nation. Dr. O'Neal explained that the trend began in the 1990s with the “.com bust.” Mechanical engineering is a “jack of all trades” major that enables students to find jobs in many different industries.

Jay Battershell asked how often the ABET review occurs. Dr. O'Neal answered that it happens every 6 years. Additionally, the computer science review is staggered and will occur in 2 years.

Rick Tullis asked about collaborations with the Schools of Law and Business. Dr. O'Neal responded that there will be research collaboration at the BRIC. Further, although he has not yet had conversation with the School of Business, he is favorably impressed and looks forward to a congenial working relationship.

Dean Swisher pointed out that, with mobile computing enabling "miniaturization," there is much opportunity for collaboration between computer science and engineering.

A Research Program Ready for a BRIC in the Nick of Time

After a brief break, the Board heard from Dr. Randall Jean, who told about the various lab locations he's used and his and other electrical and computer engineering faculty plans to move their labs to the BRIC. He also gave the Board a brief overview of some of his research projects.

Jay Battershell asked who will be moving to the BRIC. Dr. Jean answered that all research labs for electrical and computer engineering faculty will move to the BRIC, beginning in January.

Spaced Out: Turning the ERA into a Design Center

With the removal of ECE research labs in January, Dr. Ian Gravagne proposed that the Engineering Research Annex (the former Baylor Health Center) be converted into space for ECS senior capstone projects. He explained the capstone design course, recapped the recent ABET feedback, proposed current needs for design space and outlined the ERA's potential and problems. Dr. Brian Garner distributed the [floor plan of the ERA](#) and shared his observations of design space at the University of Detroit-Mercy, where he recently visited.

Following the presentation, Chip Fichtner encouraged the Board to "think larger." Rick Tullis added that ECS should look at downtown and/or industrial space not currently being used.

Steve Smith predicted that asbestos will be a problem in the ERA. Harold Rafuse added that it will take a large amount of money to refurbish the ERA. He wondered about plans to move design projects to the BRIC. Dr. O'Neal responded that there is not a good transportation plan for getting undergraduate students to the BRIC.

Rick Tullis and Harold Rafuse volunteered to help scout out possible design space in downtown Waco.

Craig Nickell and Trent Voigt reminded the group of the need for adequate power for design space. Dr. O'Neal also pointed out that having downtown space would be advantageous for companies that might sponsor design projects.

Development Update

Ms. Rose Youngblood, Director of Development, addressed the Board of Advocates. She began by giving a personal introduction and telling about her career path. She outlined the ongoing organizational restructuring in University Development and gave a brief overview of current ECS Fundraising Projects. She asked Rick Tullis to mention the upcoming [Top Shot Clay Shoot Competition](#). Jim Wiethorn added that ECS sponsors will enable a portion of the profits be designated to ECS (as opposed to the sponsors from the School of Business).

Bill Mearse asked about challenging young groups of alumni to give to the President's Scholarship Initiative. Ms. Youngblood answered that the annual giving challenge to reunion classes has not been geared specifically toward academic units. Mr. Mearse elaborated that it might be easier for younger, more difficult-to-engage alumni to give to their graduation class years. Rose agreed, saying that annual giving is the foundation of giving. Additionally, there is now a new Director of Annual Giving in University Development, who may be able to engage academic units more easily.

Don McErlean asked about tracking government grants. There is currently an increase in those programs, and it is a worthwhile area to pursue. Rose responded that University Development has not been as focused on grants and corporate development. Harold Rafuse echoed Mr. McErlean's comments, saying that industrialization funding and corporate development is important.

Following the discussion, the Board adjourned for lunch in the Barfield Drawing Room. At the lunch, the [Baylor Baja](#) Team gave a presentation about their inaugural competition and plans for the current year's car project and 2013 competition.

Departmental Breakout Sessions

After lunch, the Board divided into four small groups and met with individual departments and representatives of the general engineering program.

Computer Science Breakout

The Board encouraged faculty in grant seeking to "optimize" -- i.e. study practices which will enable faculty to be more highly successful, not just ideas which are fundable.

They encouraged the faculty to leverage their projects to get Baylor's name more in the public eye, e.g. with Dr. Eunjee Song's software engineering project with the Fort Worth Museum of Science and History (FWMSH). For future work like that with the FWMSH, they recommended looking at which non-profit/charitable organizations are supported by (large) corporations, and then see what role Baylor CS could provide to the non-profit while being supported by the corporation.

General Engineering Breakout

This is the longest accredited ABET program and contains several different degree stems. Several concerns were identified as Dean O'Neal pointed out and Dr. Kelley will need a lot of help in solving the ABET-visit challenges. The program is in a transition stage. Most immediate attention needs to

be focused on the ABET deficiencies, including writing a job description for program director. Dr. Kelley is anxious to complete this step, and he will focus immediately with student advising. The other programs have some of the same ABET needs and efforts will be coordinated to resolve them. This will include revising program objectives and the board will be asked to assist with that. Also, to help overcome not using the FE exam in general engineering assessment, a student portfolio for several of the outcomes will be used. Although the general engineering program has a long history at Baylor, its future is at stake. Students who major in general engineering usually have other interests in things like pre-law and pre-med. The program has real value and graduates are capable problem solvers and the kind of graduates we like. The engineering core and other disciplines can be layered on top of the basic curriculum. Three to five selected paths are suggested. It's adaptable, but needs to be documented in the future. The general engineering program might be the incubator for the next engineering major, nearly half of the students are in the biomedical path. The Board suggests pursuing a dialog with Pre-Law.

Later in the afternoon, the Board met in closed session. After the closed session, Mr. Mearse summarized the Board's thoughts about the day. He said that everyone agreed it was a worthwhile day and thanked all who participated. He mentioned several "high points."

1. Strategic plan. The Board is willing/able to assist. ECS should look to define the Board's role in the process and in general. ECS should review former Dean Kelley's strategic plan and figure out a timeline. The Board suggests that Strategic plan dovetail *Pro Futuris* and be ready to implement by June 1, 2013
2. ABET feedback. The Board appreciated Dean O'Neal's openness about the visit and recognized that there's some work to be done and that it is a priority.
3. Philanthropy. The Board believes and is encouraged that development seems to be back on track. Rose seems very focused on ECS. The Board has always done a scholarship matching & will talk with Rose about doing that again.
4. BRIC. The Board would like to hear more in terms of overall plan for BRIC. Is warehouse plan a stop-gap until getting into the BRIC? What's after ECE moves in? Dr. O'Neal responded that Dr. Truell Hyde is very involved and concerned about progress of the BRIC's Phase 3.
5. Computer Science. The Board wants to hear more about the computer science program.
6. Career Services. The Board is encouraged about getting more companies to Baylor and the progress with Career Services. The Board suggested meeting the new Executive Director of Career and Professional Development. Dr. O'Neal responded that there is lots of room for growth in Career Services. Now, with nearly 1000 ECS students, alumni will be future recruiters and donors. Also, ECS wants companies coming so we can develop relationships with companies for corporate donations, an "area we haven't yet cracked."
7. East Village Residential College. The Board would like to hear more about East Village RC.
8. The New Dean. The Board was favorably impressed by O'Neal's presentation his perceptions of things. Overall the Board feels positive about how things are settling in.

Dr. O'Neal responded that the ABET coordinators for each of the engineering programs will work on PEOs & part of process is that they need to be vetted by Bd. May bring some ABET leaders up for lunch and feedback on PEOs to help "short-circuit" the process.

Next, the Board summarized the breakout reports:

- Computer Science (Jay Battershell). The Computer Science group shared lots of information about cross-discipline research efforts and grants. There was focus on three specific project areas: (1) corporate/non-profit/Baylor overall project where corporations support non-profit effort. As an example, the IBM/Ft. Worth museum software engineering project (2) health care, and (3) human-computer interaction. An observation is that the funding model seems ad-hoc. Mr. Battershell commented that focus should be on “the funnel and how you're managing it.” Additionally, the publicity needs to be stronger, and perhaps there will be an opportunity to align with other non-profit organizations. Shawn Sedate commented that the original program was focused on gaming development, but technology seems to be moving more toward human-machine interaction.
- Electrical and Computer Engineering (Harold Rafuse). The ECE group presented a good update with much information. The group introduced the ECE faculty and shared their credentials. The group talked about several topics: (1) undergrad recruiting (Premiers, local schools incl grade schools), including BEST Robotics and mentoring high school BEST teams, as examples of outreach, as well as international outreach, and (2) the ABET review: no deficiencies, but some weaknesses, three concerns. Outreach efforts need money and donor connections. The Board approves of the department's increased involvement in working with industry; several proposals have been submitted.
- General Engineering (Dean Swisher). Dr. Kelley will need a lot of help in solving the ABET visit challenges. The program is in a transition stage. Most immediate attention needs to be focused on the ABET deficiencies, including writing description for program coordinator. Dr. Kelley is anxious to complete this step, and he will focus immediately with student advising. Although the general engineering program has a long history at Baylor, its future is at stake. Students who major in general engineering usually have other interests in things like pre-law and pre-med. The program has real value: there's the engineering core and other disciplines can be layered on top of it. It's adaptable, but needs to be documented in the future. The general engineering program might be the incubator for the next engineering major. The Board suggests pursuing a dialog with Pre-Law.
- Mechanical Engineering (Don McErlean). The group had a discussion about the PEOs that were listed for the department and ABET's objections. There are three fundamental things an engineering student should be able to accomplish: (1) support of life-long learning, (2) making a successful integration to his/her career, and (3) being able to advance up the success ladder. The mechanical engineering program will measure continuing education and progress with an alumni survey.

Finally, the date for Spring meeting was set for April 19, 2013. O'Neal thanked everyone for their time & willingness to be here & provide input. The meeting concluded at 4:30.